



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,990	11/18/2003	Yoshiaki Komma	10873.1356US01	7580
23552	7590	10/31/2005	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			LAVARIAS, ARNEL C	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/716,990	Applicant(s) KOMMA ET AL.	
	Examiner Arnel C. Lavarias	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/18/05, 2/21/05, 1/7/05, 1/15/04, 11/18/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 4,6-15,31-36,38,41 and 43 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37,39 and 45 is/are allowed.
- 6) ☒ Claim(s) 1-3,16,17,21,25-27,30,40 and 42 is/are rejected.
- 7) ☒ Claim(s) 5,18-20,22-24,28,29 and 44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/7/05, 1/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendments to Claims 2, 6, 30, 39 in the preliminary amendment filed 2/21/05 are acknowledged and accepted.
2. The addition of Claims 42-45 in the preliminary amendment filed 2/21/05 is acknowledged and accepted.

Election/Restrictions

3. Applicant's election of Invention II, Group IIa (Claims 30, 39, 44-45) in the reply filed on 8/18/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
4. Claims 4, 6-15, 31-36, 38, 41, 43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions and species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/18/05.

Priority

5. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

6. The drawings were received on 11/18/03. These drawings are objected to for the following reason(s) as set forth below.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Figure 18- Reference numeral 61.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

Figure 1- Reference numeral 21

Figures 2, 5, 7, 10, 13, 14- Reference numerals 34, 91

Figure 7- Reference numeral 1361

Figure 11A- Reference numerals 135A, 135D

Figure 13- Reference numeral 1441

Figure 15- Reference numeral 63

Figure 17- Reference numerals 66, 77

Figure 19- Reference numerals 65, 135

Figure 20- Reference numerals 44, 403.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

9. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-2, 16-17, 21, 25-27, 30, 40, 42 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 8, 9, 11, 13-15 of copending Application No. 10/789,309. Although the conflicting claims are not identical, they are not patentably distinct from each other because copending Application No. 10/789,309 similarly discloses/claims an optical element and lens designed for at least two wavelengths of red light and blue light, comprising a phase level difference, wherein a difference in optical path length occurring when the blue light passes through the phase level difference is five times the wavelength of the blue light (See Claims 1, 8-9, 13). Copending Application No. 10/789,309 further discloses an optical lens comprising a hologram, a refractive lens, and the phase level difference, wherein the hologram includes a sawtooth shape grating having a sawtooth shape in cross section, and generates +2nd order diffracted light most strongly with respect to blue light and generates +1st order diffracted light most strongly with respect to red light, by setting a height of the sawtooth shape grating (See Claims 1, 8-9); the height of the sawtooth shape grating is h1, and h1 provides a difference in optical path of about 2 wavelengths

with respect to blue light (See Claims 1, 8); blue light is condensed through a substrate having a thickness t_1 , and the hologram is formed into a convex lens type so as to reduce a change in focal length when a wavelength λ_1 of the blue light is changed, whereby the blue light is subjected to a convex lens function by the hologram (See Claims 1, 8); the hologram, the refractive lens, and the phase level difference are fixed integrally; the hologram is integrally formed on a surface of the refractive lens; and the phase level is integrally formed on a surface of the refractive lens (See Claims 1, 8, 14-15); an optical head apparatus including the optical lens, a first laser light source for emitting blue light having a wavelength λ_1 , a second laser light source for emitting red light having a wavelength λ_2 , a photodetector or receiving a light beam reflected from a recording surface of an optical information medium and outputting an electric signal in accordance with a light amount of the light beam (See Claims 1, 8-9); the lens designed for light having one wavelength, comprising a phase level difference, wherein a difference in optical path length occurring when the light passes through the level difference is an integral multiple of the wavelength of the light (See Claims 1, 8-9, 13); and blue light is condensed by the optical lens through a substrate having a thickness t_1 , the red light is condensed by the optical lens through a substrate having a thickness t_2 , and $t_1 < t_2$ (See Claims 1, 8-9).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claim 40 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 22, 32, 63, 69,

72, 81, 85, 87, 89 of copending Application No. 10/453,073. Although the conflicting claims are not identical, they are not patentably distinct from each other because copending Application No. 10/453,073 similarly discloses/claims an optical lens designed for light having one wavelength, comprising a phase level difference, wherein a difference in optical path length occurring when the light passes through the phase level difference is an integral multiple of the wavelength of the light (See Claims 1, 22, 32, 63, 69, 72, 81, 85, 87, 89).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Claim 40 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 3, 6, 11, 17, 22, 28 of U.S. Patent No. 6928035. Although the conflicting claims are not identical, they are not patentably distinct from each other because U.S. Patent No. 6928035 similarly discloses/claims an optical lens designed for light having one wavelength, comprising a phase level difference, wherein a difference in optical path length occurring when the light passes through the phase level difference is an integral multiple of the wavelength of the light (See Claims 3, 6, 11, 17, 22, 28).

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15. Claim 40 is rejected under 35 U.S.C. 102(e) as being anticipated by Komma et al. (U.S. Patent No. 6928035).

The applied reference has common inventors and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Komma et al. discloses an optical lens (See 3 in Figures 1-4) designed for light having one wavelength, comprising a phase level difference, wherein a difference in optical path length occurring when the light passes through the phase level difference is an integral multiple of the wavelength of the light (See Claims 3, 6, 11, 17, 22, 28; col. 17, line 33-col. 18, line 21).

16. Claim 40 is rejected under 35 U.S.C. 102(e) as being anticipated by Shiono et al. (U.S. Patent Application Publication US 2005/0152036 A1).

Shiono et al. discloses an optical lens (See Figures 1-2, 5-7, 10) designed for light having one wavelength, comprising a phase level difference, wherein a difference in optical path length occurring when the light passes through the phase level difference is

an integral multiple of the wavelength of the light (See 'L' in Figures 1-2, 5-7; Paragraphs 0035-0041).

17. Claim 40 is rejected under 35 U.S.C. 102(e) as being anticipated by Hendriks et al. (U.S. Patent Application Publication US 2003/0151996 A1).

Hendriks et al. discloses an optical lens (See 10, 11 in Figures 1-4) designed for light having one wavelength, comprising a phase level difference, wherein a difference in optical path length occurring when the light passes through the phase level difference is an integral multiple of the wavelength of the light (See in particular Figure 4; Paragraphs 0039-0054).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 1-2, 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hendriks et al.

Hendriks et al. discloses an optical element and lens (See 10, 11 in Figures 1-4) designed for at least two wavelengths of red light and blue light (See Abstract; Paragraph 0034), comprising a phase level difference, wherein a difference in optical path length occurring when the blue light passes through the phase level difference is an integral number times the wavelength of the blue light (See in particular Figure 4; Paragraphs

0039-0054). Hendriks et al. further discloses the optical lens being a refractive lens (See 10 in Figures 1-4); and the blue light is condensed by the optical lens through a substrate having a thickness t_1 , the red light is condensed by the optical lens through a substrate having a thickness t_2 , and $t_1 < t_2$ (See Figure 1; Paragraphs 0007-0008; 0030-0037).

However, Hendriks et al. does not explicitly disclose the optical path length difference being five times the wavelength. However, Hendrix et al. does additionally teach that in order for the phase structure to not have any effect on the light traversing the phase structure, the phase change should be equal to 2π , or an integer multiple of 2π (See Paragraphs 0041-0054), such as $5 \cdot 2\pi$. This in turn yields, via Equation 1 (See Paragraph 0041), the height of the step being an integral multiple of the step height derived in Equation 2, and hence an integral multiple of the wavelength, i.e. $5 \cdot 2\pi$ phase change arises from $5 \cdot \lambda$ change. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the optical path length difference be five times the wavelength, as taught by Hendriks et al., in the optical element and lens, for the purpose of simplifying the construction of the phase levels, since larger/taller phase levels due to the larger integer are easier to fabricate, while maintaining a substantially flat wavefront of the incident light.

20. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hendriks et al. in view of Nagoya et al. (JP2002-237078 A1), of record.

Hendriks et al. discloses the invention as set forth above in Claim 2, except for the optical lens formed of two different kinds of materials. However, Nagoya et al. teaches a conventional objective lens (See for example Figures 1, 5), wherein the objective lens is

made out of two different kinds of materials (See Abstract). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the optical lens of Hendriks et al., be formed of two different kinds of materials, as taught by Nagoya et al., to provide for correction of spherical aberration of the incident light, particularly when different wavelengths are used for reading from or writing to different thickness optical disks.

Allowable Subject Matter

21. Claims 37, 39, 45 are allowed.
22. The following is a statement of reasons for the indication of allowable subject matter:

Claim 37 is allowable over the cited art of record for at least the reason that the cited art of record fails to teach or reasonably suggest an optical lens, as generally set forth in Claim 37, the lens including, in combination with the features recited in Claim 37, a hologram grating of the hologram being formed in an inner circumferential portion at least including an intersection with an optical axis of the hologram, wherein a difference in optical path length occurring when the blue light passes through the phase level difference is five times a wavelength of the blue light. Claims 39, 45 are dependent on Claim 37, and hence are allowable for at least the same reasons Claim 37 is allowable.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias
Patent Examiner
Group Art Unit 2872
10/28/05